UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,104	03/19/2004	Jari Makinen	59643.00374	7097

32294   7590   03/06/2008

SQUIRE, SANDERS & DEMPSEY L.L.P.
14TH FLOOR
8000 TOWERS CRESCENT
TYSONS CORNER, VA 22182

EXAMINER
AZAD, ABUL K

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
03/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 December 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-23</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This action is in response to the communication filed on December 3, 2007.

2.   Claims 1-23 are pending in this action.

3.   The applicant's arguments with respect to claims 1-23 have been fully

considered but they are not deemed to be persuasive. For examiner's response to the

applicant's arguments or comments, see the detailed discussion in the Response to the

Arguments section.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1, 2 and 4-23 are rejected under 35 U.S.C. 102(b) as being anticipated by

Wynn (US 5,708,754).

As per claim 1, Wynn teaches, "a method comprising:

"receiving a speech signal including voice signals and background signals" (col.

5, lines 1-3);

"detecting voice activity and providing an indicator when no voice activity is

detected" (Fig. 3, element 25, col. 4, lines 7-46);

"encoding the speech signal to generate a plurality of parameters representing the signal" (col. 4, lines 58-67); and

"when the indicator is not present, outputting a first parametric representation of the speech signal comprising the plurality of parameters, and, when the indicator is present, modifying at least one of the plurality of parameters and outputting a second parametric representation of the speech signal including the modified parameter" (col. 4, lines 7-27).

As per claim 2, Wynn teaches, "wherein the plurality of parameters includes a linear prediction calculation vector of quantized linear prediction filter coefficients" (col. 5, lines 13-30).

As per claim 4, Wynn teaches, "wherein the plurality of parameters includes a residual vector" (col. 7, lines 1-5).

As per claim 5, Wynn teaches, "wherein the speech signal is received as a sequence of samples arranged in frames" (col. 7, lines 20-29).

As per claim 6, Wynn teaches, "wherein the step of modifying the at least one parameter includes smoothing the parameter for a current frame based on characteristics of the parameter in other frames of the speech signal" (col. 9, lines 20-44).

As per claim 7, Wynn teaches, "wherein said other frames include adjacent frames" (col. 20, lines 20-44).

As per claim 8, Wynn teaches, "wherein the step of modifying the at least one parameter includes producing a count of the number of received frames up to a

predetermined maximum, and using said count in the modifying step" (col. 7, lines 45-67).

As per claim 9, Wynn teaches, "wherein the step of modifying the at least one parameter includes generating a randomized value for the parameter" (col. 8, lines 36-55).

As per claim 10, Wynn teaches, "wherein the step of modifying the at least one parameter includes taking into account the energy levels associated with the parameter" (col. 8, lines 36-55).

As per claim 11, Wynn teaches, "wherein the step of modifying the at least one parameter includes modifying a value utilized in the generation of the parameter, whereby modification of that value produces a modified parameter" (col. 9, lines 35-60).

As per claim 12, Wynn teaches, "wherein the step of modifying the value comprises randomizing the value" (col. 8, lines 36-55).

As per claims 13-22, they are interpreted and thus rejected for the same reasons set forth in the rejection of claims 1, 2 and 4-12.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wynn as

applied to claim 1 above, and further in view of Su et al. (US 6,823,303).

As per claim 3, Wynn does not explicitly teach, "wherein the plurality includes a

gain parameter based on open-loop lag value". However Su teaches, "wherein the

plurality includes a gain parameter based on open-loop lag value" (col. 10, lines 10-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention to calculate gain parameter based on open-loop lag value in the invention of

Wynn because Su teaches in the fixed codbook search to find the optimum innovation

(col. 10, lines 24-26).

Response to Arguments

8.   The applicant argues, "Wynn disclose a process that comprises a model-based

iterative signal estimator, a Voice Activity Detector (VAD), which continuously detects

noise or speech-plus-noise frames and determines if a speech frame is voiced or

unvoiced, and a noise suppression circuit combined with a suppressor. Wynn discloses

that when a processed frame is detected as noise only, the process performed by the

signal estimator is not implemented and the VAD signals the noise suppression circuit

to switch in the suppressor. Wynn further discloses that, when a noise-only frame is

detected, the VAD signals a noise weight update function associated with the signal

estimator to make a new noise spectral estimate based on the current noise frames and

to combine it with the previous noise spectral estimate (column 4, lines 7-27). However,

Wynn fails to disclose that the suppressor modifies at least one of the parameters of the

noise frame. Furthermore, Wynn fails to disclose that the processor outputs a second

parametric representation of the speech signal including a modified parameter. Instead,

Wynn discloses that a noise weight update function makes a new noise spectral

estimate based on the current noise frames and combines it with a previous noise

spectral estimate. Wynn fails to disclose that the noise spectral estimate is ever

outputted with the digital speech signal. Instead, Wynn discloses that the noise spectral

estimate is subsequently used for iterative filtering of a speech block (column 5, line 65 -

column 6, line 9). Thus, Wynn fails to disclose, teach, or suggest, at least, "when the

indicator is not present, outputting a first parametric representation of the speech signal

comprising the plurality of parameters, and, when the indicator is present, modifying at

least one of the plurality of parameters and outputting a second parametric

representation of the speech signal including the modified parameter," as recited in

claims 1 and 22, and similarly recited in claims 13, 18-20, and 23".

9.   The examiner disagrees with the applicant's assertion because Wynn teaches

claimed all the limitations. The applicant has claimed when speech is detected out

putting first parametric representation of speech signal; and when noise is detected

modifying at least one of the plurality of parameters of speech signals and outputting

second parametric representation the speech signal. However, applicant did not claim

"modifies at least one of the parameters of the noise frame", as argued. Here Wynn

teaches at column 4, lines 28-30, claimed "when the indicator is not present (speech is

detected), outputting a first parametric representation of the speech signal comprising

the plurality of parameters"; reads on "when speech is detected by the VAD 25, input to

circuit 26 is switched to signal estimator 23 such that the filtered speech is passed to

the outgoing line19" that is when speech is detected no modification is done on the

speech signal and first parametric representation of speech is outputted on the out

going line. Similarly Wynn teaches, at col. 4, lines 17-27, claimed "when the indicator is

present, modifying at least one of the plurality of parameters and outputting a second

parametric representation of the speech signal including the modified parameter," as

reads on "in this mode, the noise only input to signal estimator 23 is attenuated

substantially before its entry to the out going path 19".

Conclusion

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Contact Information

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to **Abul K. Azad** whose telephone number is **(571) 272-**

7599. If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, **Patric Edouard**, can be reached at **(571) 272-7603.**

Any response to this action should be mailed to:

> **Commissioner for Patents**
>
> **P.O. Box 1450**
>
> **Alexandria, VA 22313-1450**

Or faxed to: **(571) 273-8300.**

Hand-delivered responses should be brought to **401 Dulany Street, Alexandria,**

VA-22314 (Customer Service Window).

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published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

February 29, 2008

Abul K. Azad

Primary Examiner

Art Unit 2626